

WHAT IS CLAIMED IS:

1. A cutting insert comprising:

a top side;

a cutting edge for cutting a chip;

5 a chip removing surface disposed behind the cutting edge and curving generally concavely upwardly to the top side to form a ridge therewith, the chip removing surface arranged to form a curvature in the chip as the chip becomes elongated; and

10 at least one chip-embossing formation extending rearwardly along the chip removing surface in the direction of chip elongation, the formation having a length in the rearward direction that is substantially greater than a width of the formation, the formation extending to the top side to produce a narrow embossment in an underside of the chip in the direction of chip elongation to stiffen the chip.

15 2. The cutting insert according to claim 1 wherein the embossment extends rearwardly past the ridge.

3. The cutting insert according to claim 1 wherein the formation comprises a groove configured to produce an embossment in the form of a ridge in the chip underside.

4. The cutting insert according to claim 1 wherein the groove has a depth of at least 0.05 mm.

5. The cutting insert according to claim 4 wherein the depth is at least 0.08 mm.

5 6. The cutting insert according to claim 4 wherein the depth is no greater than 0.15 mm.

7. The cutting insert according to claim 6 wherein the depth is no greater than 0.12 mm.

10 8. The cutting insert according to claim 3 wherein the depth is no greater than 0.15 mm.

9. The cutting insert according to claim 8 wherein the depth is no greater than 0.12 mm.

10. The cutting insert according to claim 4 wherein the groove has a width in the range 0.10-0.30 mm.

15 11. The cutting insert according to claim 3 wherein the groove includes a main portion that branches off into partial grooves at a front end thereof adjacent the cutting edge, wherein the partial grooves are directed in respective directions toward the cutting edge.

20 12. The cutting insert according to claim 11 wherein a rear end of the groove forms a countersink in the top side, the countersink being wider than the main portion of the groove.

13. The cutting insert according to claim 11 wherein the groove has a depth of at least 0.05 and no more than 0.15 mm.

14. The cutting insert according to claim 3 wherein the groove becomes widened at a rear end thereof, the widened rear end forming a countersink in the top side.

15. The cutting insert according to claim 1 wherein the embossment comprises at least one bead configured to produce an embossment in the form of a flute in the chip underside.

16. The cutting insert according to claim 15 wherein the bead has a height of at least 0.05 mm.

17. The cutting insert according to claim 16 wherein the height is at least 0.08 mm.

18. The cutting insert according to claim 17 wherein the height is no greater than 0.15 mm.

19. The cutting insert according to claim 16 wherein the height is no greater than 0.15 mm.

20. The cutting insert according to claim 19 wherein the height is no greater than 0.12 mm.

21. The cutting insert according to claim 16 wherein the bead has a width in the range 0.10-0.30 mm.

22. The cutting insert according to claim 1 wherein the at least one chip-embossing formation comprises a plurality of parallel formations.

23. A method of chip-forming drilling comprising the steps of:

- 5 A) engaging a workpiece with a cutting edge of a cutting insert to cut a chip;
- B) guiding the cut chip rearwardly along a chip-removing surface of the insert and upwardly along a concavely curved rear portion of the chip removing surface to a ridge formed at an intersection of the curved portion and a top side of the insert; and
- 10 C) producing at least one embossment in an underside of the chip as the chip travels along the chip removing surface, the embossment having a length in the direction of elongation that is substantially greater than a width of the embossment, the embossment being produced until the chip reaches the top side.

15 24. The method according to claim 23 wherein the embossment is in the form of a ridge.

 25. The method according to claim 23 wherein the embossment is in the form of a flute.